

IN THE CLAIMS:

1. An alpha-amylase for processing grain, the alpha-amylase derived from *Bacillus acidocaldarius*, having low pH performance and producing a starch liquefact from grain, the liquefact free of maltulose and suitable for conventional saccharification processes without chemical additions or pH adjustment.
2. An alpha-amylase derived from *Bacillus acidocaldarius* for liquefying starch, the alpha-amylase following a single low temperature liquefaction process producing a starch liquefact free of maltulose, having a pH of about 4.0-4.5, a DE of about 10-12 and having inactivated alpha-amylase that does not adversely affect saccharification enzymes.
3. A process for producing glucose from starch comprising the acts of:
  - a) providing a mixture of a starch slurry having a pH as low as 3.0 and an thermostable, acid-stable alpha-amylase capable of hydrolyzing starch at a pH as low as 3.0, the alpha-amylase cultured from *Bacillus acidocaldarius*;
  - b) liquefying the starch slurry by heating the mixture until a DE of about 10-12 is reached without the production of maltulose; and
  - c) adding a saccharification enzyme to the liquefied starch slurry from step b) and maintaining a resulting saccharification mixture at about 60° C for between about 10-48 hours or until about a 95% glucose yield is achieved.
4. The process of claim 3 wherein act a) is carried out without adjusting the pH of the starch slurry.
5. The process of claim 3 wherein act a) is carried out without adding a calcium salt.
6. The process of claim 3 wherein act a) is carried out without adjusting the pH of the starch slurry and without adding a calcium salt.
7. The process of claim 4 wherein act b) further comprises heating the mixture at about 105-110° C for 5-8 minutes.

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- Figure 1 consists of 12 bar charts, each representing a different variable. Each chart has four bars corresponding to the groups: Control (n=100), Low (n=100), High (n=100), and High + Low (n=100). The y-axis for all charts represents the percentage of respondents, ranging from 0 to 100. The x-axis for each chart lists the response categories for that variable.
- Age:** Categories are 18-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75-84, 85-94.
  - Sex:** Categories are Male, Female.
  - Education:** Categories are Less than high school, High school, Some college, College, Graduate school.
  - Income:** Categories are Less than \$10,000, \$10,000-\$19,999, \$20,000-\$29,999, \$30,000-\$39,999, \$40,000-\$49,999, \$50,000-\$59,999, \$60,000-\$69,999, \$70,000-\$79,999, \$80,000-\$89,999, \$90,000-\$99,999, \$100,000 or more.
  - Employment:** Categories are Unemployed, Part-time, Full-time.
  - Religion:** Categories are Jewish, Christian, Muslim, Other.
  - Marital Status:** Categories are Single, Married, Divorced, Widowed.
  - Political Party:** Categories are Republican, Democrat, Independent.
  - Attitude toward Blacks:** Categories are Very good, Good, Fair, Poor, Very poor.
  - Attitude toward Jews:** Categories are Very good, Good, Fair, Poor, Very poor.
  - Attitude toward Arabs:** Categories are Very good, Good, Fair, Poor, Very poor.
  - Attitude toward Muslims:** Categories are Very good, Good, Fair, Poor, Very poor.